

### REMARKS

Based on the claim amendments above, claims 1-36 and 38-47 are pending. Claims 1, 22, 24, 30, 33, 38, 41, 43, 46, and 47 are the independent claims.

Preliminarily, we acknowledge the Examiner's indication that claims 22, 24, 32, and 36 would be allowable if rewritten in independent form. Accordingly, claims 22 and 24 have been rewritten in independent form and claims 32 and 36 have been rewritten as new independent claims 46 and 47, respectively.

We now address the remaining independent claims.

Claim 1 has been amended to recite that "each aperture has a transverse dimension smaller than the vacuum wavelength of the electromagnetic radiation provided by the source," as originally recited in claim 4. The action concedes that this feature is not found in the primary reference Roberts (U.S. Patent No. 4,390,994), but asserts that it would be obvious to modify Roberts to include this feature in view of Ebbesen (U.S. Patent No. 5,973,316) "to improve the clarity of light incident on the object" (Paragraph 6 of Action). We disagree.

Not only does Roberts not disclose this feature, he specifically teaches away from it. To provide beam quality as the Action suggests, Roberts states:

"[I]f it is necessary to retain image or beam quality, the diameter of the pores should be at least  $50\lambda$  where  $\lambda$  is the wavelength of the laser output radiation and preferably it should be at least  $100\lambda$  whether or not a substantial pressure differential exists across the window." (Col. 3, lines 7-12)

Even where beam quality is not a factor, Roberts still emphasizes that the pore diameter should be greater than  $\lambda$  - "If only simple light transmission is required, the pore diameter should at least be greater than  $\lambda$ " (Col. 3, lines 12-14).

Where one reference specifically teaches away from the proposed combination, the obviousness rejection must fail. MPEP 2145(X)(D)(2). Accordingly, we submit that claim 1 as amended is patentable over the cited art.

Like claim 1, independent claim 38 as been amended to recite "wherein each aperture has a transverse dimension smaller than the vacuum wavelength of the electromagnetic radiation

provided by the source.” Accordingly, we submit that claim 38 as presently amended is patentable for the same reasons as set forth above for claim 1.

Claims 30 and 41 stand rejected as obvious over Roberts (U.S. Patent No. 4,390,994) in view of Krantz (U.S. Patent No. 6,248,988). Even if there were motivation “to use the multi-element photo-detector and imaging system of Krantz with the multiple source array and method of Roberts” as proposed at Paragraph 12 of the Action, something we do not concede, we submit that the proposed combination still fails to meet the features of claims 30 and 41.

For example, claim 30 recites that the return beam imaged to the multi-element photo-detector “comprises electromagnetic radiation scattered/reflected by the object back through the apertures in response to the electromagnetic radiation leaked through the apertures towards the object.” Similarly, claim 43 recites that “the imaged electromagnetic radiation produced by the object passes back through the array of apertures before being imaged to the multi-element photo-detector.” The Action points to nothing in either reference to teach or suggest that electromagnetic radiation scattered/reflected by the test object in Krantz passes back through the pores of Robert’s laser and into his laser cavity, let alone that such radiation is then somehow imaged to the photo-detector in Krantz. Accordingly, we submit that claims 30 and 41 as amended are patentable over the cited art.

Finally, claims 33 and 43 stand rejected as obvious over Roberts (U.S. Patent No. 4,390,994) in view of Krantz (U.S. Patent No. 6,248,988). Even if there were motivation “to use the multi-element photo-detector and imaging system of Krantz with the multiple source array and method of Roberts” as proposed at Paragraph 12 of the Action, something we do not concede, we submit that the proposed combination still fails to meet the features of claims 33 and 43.

For example, claim 33 recites “an imaging system positioned to image a signal beam to the multi-element photo-detector, wherein the signal beam comprises electromagnetic radiation transmitted by the object through the apertures of the multiple detector array in response to the electromagnetic radiation leaked through the apertures of the multiple source array towards the object.” Similarly, claim 43 recites that “the electromagnetic radiation produced by the object

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Attorney's Docket No.: 11540-005001 / ZI-18 Optical  
Cavity/Near-Field

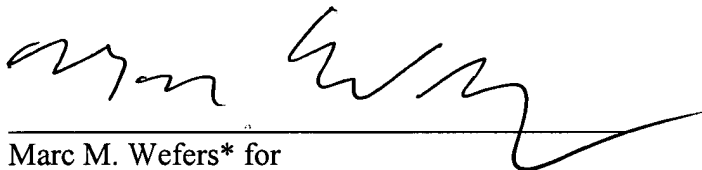
passes through a second array of apertures before being imaged to the multi-element photo-detector." The Action points to array detectors 244' and 252' in Krantz as defining the "multiple detector array" in claim 33 or the "second array of apertures" in claim 43, however, to the extent any light passes through array detectors 244' and 252', such light is not subsequently imaged to a multi-element photo-detector. To the contrary, in FIG. 15 Krantz shows imaging systems 243 and 251 preceding array detectors 244' and 252', respectively. Accordingly, we submit that claims 33 and 43 as amended are patentable over the cited art.

In view of the above, we ask that the Examiner withdraw the outstanding rejections and allow the application.

Enclosed is a \$620.00 check for excess claim fees. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney Docket No. 11540-005001.

Respectfully submitted,

Date: 10/9/03



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**\*See attached document certifying that Marc M. Wefers has limited recognition to practice before the U.S. Patent and Trademark Office under 37 C.F.R. § 10.9(b).**



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**Expires: December 23, 2003**

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